March 12, 1986

Dear Motorcycle Manufacturer: CD-86-04 (MC)

Subject: Instructions for the Preparation and Submission of Applications for Certificates of Conformity for 1987 and Later Model Year Motorcycles

The enclosed document, "Instructions for the Preparation and Submission of Applications for Certificates of Conformity for 1987 and Later Model Year Motorcycles," is forwarded to provide guidance regarding the documentation of compliance with the exhaust emission standards which are applicable to such vehicles. The information which must be submitted in an application is specified and the format in which it should be presented to expedite the review process is described in detail.

The instructions are similar to those that were issued in connection with prior model year applications with the exception of Section 3, Maintenance and Warranty. In this section, the submission of shop manuals and technical service bulletins is no longer required.

The information which is specified in the enclosed document does not include all of the data and records which are specified in 40 CFR, Part 86, Subparts E and F. The information or materials which are not specified in the instructions must be retained in the applicant's files to be provided to EPA upon the receipt of a specific request.

Any questions or comments should be directed to Mr. T. Snyder at (313) 668-4376.

Sincerely,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources

Enclosure

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INSTRUCTIONS
FOR THE

PREPARATION AND SUBMISSION

OF

APPLICATIONS FOR CERTIFICATES OF CONFORMITY

FOR

1987 AND LATER MODEL YEAR MOTORCYCLES

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF MOBILE SOURCES
CERTIFICATION DIVISION
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Issue Date: March 12, 1986

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Chapter 1

Introduction

The purpose of these instructions is to provide guidance regarding the preparation, submission, and revision of applications for certificates of conformity to the Federal regulations which govern exhaust emissions from 1987 and later model year motorcycles. Detailed specifications regarding the information which must be provided and suggestions concerning the organization and submission of this information are presented. The preparation of applications for the certification of small-volume product lines with projected sales of less than 10,000 units is specifically addressed in Chapter 4.

An application which is prepared in accordance with these instructions is EPA's principal source of information regarding the product line which is to be certified. This information provides the primary basis for the determination of compliance with emission control regulations. Therefore, the application must be complete and accurate when it is submitted. after it is submitted, it needs to be kept current by the submission of he necessary updating material.

The information specified in these instructions does not include all of the data and records which are specified in 40 CFR, Part 86, Subparts E and F. The material which is not specified in the instructions must be retained in the applicants' files to be provided to EPA upon the receipt of a specific request.

Chapter 2

General Instructions

This chapter provides general instructions regarding the preparation, submission, and revision of an application.

2.1 Letter of Intent

Under the certification protocol which will be implemented, the application for a certificate of conformity is not submitted until all phases of the certification program, including all testing, have been completed. This protocol eliminates the delays that would be incurred if interaction with EPA was necessary at the various intermediate stages of

the applicant's certification program but it impairs EPA's ability to set up schedules and formulate plans which will help facilitate a timely response to the applicant's requests for assistance and approval. Therefore, the applicant is encouraged to submit a letter of intent to EPA before the application is submitted. The basic information relating to each engine family to be certified, such as the identifying family name and the anticipated date when the request for a certificate will be submitted. The inclusion of any other general information, such as the anticipated carryover of test data from previously certified test vehicles, is recommended. The submittal of such a letter of intent should not be delayed until all information is completely finalized. Best estimates, when finalized data are not available, can be used. However, if significant changes in the anticipated certification program, such as the deletion or addition of an engine family, are made after the submission of a letter of intent, a letter which updates the previously submitted information should be forwarded to EPA.

2.2 Terminology

Certain terms contained in the application instructions have unique connotations to assist applicants in meeting EPA's requirements for information. These unique connotations are defined in 40 CFR Part 86.

2.3 Structure of the Application

A specific application format is recommended in these instructions. However, any logical comprehensive presentation of the information specified in these instructions is acceptable.

The recommended structure of the application for certification is divided into the following sections:

1. Communications
2. Statement of Confidentially
3. [Reserved]
4. [Reserved]
5. [Reserved]
6. Maintenance and Warranty
7. Labeling
8. General Technical Description
9. [Reserved]
10. Engine Family Descriptions
11. [Reserved]
12. Test Vehicle Information
13. [Reserved]
14. [Reserved]
15. [Reserved]
16. Request for Certificate

Chapter 3 of these instructions specifies the precise contents of each of these sections.

The division of the application into sections reflects the fact that the elements of information within the application vary widely in their relevance and applicability to the applicant's product line or certification program as a whole. The data required by Section 10 (Engine Family Descriptions), for example applies to a single engine family; a description of a carburetor in Section 8 (General Technical Description) would pertain to all vehicles and engine family/exhaust emission control system combinations that would be equipped with that carburetor during a particular model year; the discussion of Maintenance and Warranty (Section 6) would apply to the applicant's entire certification program and product line for one model year. The suggested format groups together in Sections 1 through 8 the "general" information that applies broadly to the entire product line or certification effort; Sections 9 through 15 provide information which are specific to particular test vehicles or engine families; Section 16 is a summary of the data required to substantiate that the new vehicles comply with Federal emission standards (Ref: 40 CFR 86.410-80).

2.4 Size and Form of the Application

All applications should be presented in the English language, on 8-1/2 inch by 11 inch paper, or a reasonable equivalent, and be bound in a looseleaf cover of the same approximate size. Divider pages should be used to separate the recommended application sections from one another.

2.5 Referencing

Referencing permits a reduction in the size of the application by minimizing duplication and redundancy. In many of the applications that were submitted in previous model years, identical information which was applicable to several engine families was reproduced in several different places. "Referencing" makes use of a single description to cover all instances within the application where that information may be necessary to eliminate such needless repetition.

Applicants are encouraged to reduce duplication by referring to the location of a unit of information's first submission whenever access to that information is required, rather than needlessly reproducing identical data. In essence, the concept of referencing reduces paperwork by encouraging the applicant to submit a unit of information only once for each model year. Referencing across model years is not allowed with the exception that APPLICANTS may reference Test Vehicle Information, Section 12, across model years. The applicant must have submitted Section 12 in

a separate binder in order to reference across model year.

Applicants should be wary, however, of applying the referencing concept too freely and producing an application whose every page is a bewildering network of allusions to other pages of the application. Such overuse of referencing would generate a document that, although free of repetition could not be reviewed without large amounts of inefficient crosschecking and page-turning. Applicants should consequently exercise good judgment to prevent taking the referencing concept to unproductive extremes.

2.6 Page Numbering

Each page number should include the respective section number, e.g., 02-2 (section 02.00.00.00 -page 2), 08.01.01-15 (section 08.01.01.00 -page 15), 05.01-9 (section 05.01.00.00 -page 9). The detail of the indexing system which is used in page numbering should be based upon the amount of information contained in a given section. In section 02.00.00.00, there is not a large enough volume of information to support a finer breakdown; however, in section 08.01.00.00 there may be many pages of carburetor description as well as fuel injection description so it may be appropriate to use three levels of indexing in the page number (even four may be appropriate if there are a number of carburetors to describe). It is up to the applicant to decide what type of detail is appropriate for his application. Some provision, such as the use of decimal numbers, should be made for adding a new page with new or supplemental data without disturbing the numbering of the other pages in a particular section, e.g., 02-2.1.

For sections that are specific to a particular engine family (e.g., 10.00.00.00, 16.00.00.00), the page numbering system should include the name of the appropriate engine family to avoid confusion in handling many pages of similar format, e.g., 10-DKA100044A7 (for engine family DKA100044A7). For purposes of page numbering, the standardized engine family name (see Appendix pages 1-5) may be abbreviated by deleting the model year and manufacturer characters, which would be common to all of a manufacturer's engine families for a given model year, and the check-sum digit, e.g., 10-100044A-2. Further abbreviation is permissible as long as the resulting designation is sufficient to identify the engine family uniquely within the application. If displacement and the "uniqueness digits" constitute a distinctive abbreviation for the family name, for instance, then 10-1000A would be an adequate page number. Applicants who wish to use abbreviated family names shorter than seven characters should clearly indicate on the divider page that precedes the engine family information the abbreviation to be used; all such abbreviations should be

summarized in a table at the beginning of Section 10.00.00.00.

2.7 Indexing

The format recommended in these instructions assigns a unique eight-digit code to every element or unit of certification data contained within the application. Each code consists of four two-digit pairs, such as 10.03.01.03, with each successive pair indicating a more precise and specific level of description. Hence, in this example, the 10 refers to engine family descriptions; the 03 refers to the fuel system (one of the individual engine parameters); the 01 refers to carburetor; and the 03 refers to calibration.

The table on pages 2-5 and 2-6 sets forth all codes which can be used within an application for certification. Some of these codes include two-digit pairs whose value is double zero (00, as in Carburetors--08.01.01.00). The presence of the double zero pair indicates that one available level of the indexing scheme has not been assigned by EPA. Designations at this level can and should be assigned by applicants, however, if distinctions at this level of precision need to be drawn. If an applicant needs to provide general technical descriptions of two kinds of carburetors, for example, the pertinent sections of the application could be labeled 08.01.01.01 and 08.01.01.02.

All submissions of certification data, should be structured according to the indexing order outlined below. Page numbers should also reflect this order, as is specified in Subpart 6 of Chapter 2 on page numbering. It is not strictly necessary to tag information within the pages of the application with their corresponding codes, if it is always clear what kind or element of data is being presented or described.

Section Number	Sequence Number	Title
01.00.00.00		COMMUNICATIONS
.01.00.00		Mailing Information
.01.00		EPA Liaison Representative in the U.S.
.02.00		Representative in Foreign Country
.03.00		Certificate Information
02.00.00.00		STATEMENT OF CONFIDENTIALITY
03.00.00.00		RESERVED

04.00.00.00	RESERVED
05.00.00.00	RESERVED
06.00.00.00	MAINTENANCE AND WARRANTY
.01.00.00	Owner's Manuals
.02.00.00	Emission System Warranty Statement
07.00.00.00	LABELING
08.00.00.00	GENERAL TECHNICAL DESCRIPTION
.01.00.00	Fuel Systems
.01.00	Carburetor
.02.00	Fuel Injection
.02.00.00	Ignition System
.03.00.00	Superchargers or Turbochargers
.04.00.00	Emission Control Systems
.01.00	Crankcase
.02.00	Engine Modification
.03.00	Air Injection
04 00	Other
.05.00.00	Auxiliary Emission Control Devices
.06.00.00	Emission Control Warning Devices
09.00.00.00	RESERVED
10.00.00.00	ENGINE FAMILY DESCRIPTIONS (See Chapter 3 on preparing the application for the contents of this section)

11.00.00.00	RESERVED
12.00.00.00	TEST VEHICLE INFORMATION
.01.00.00	Zero Kilometer Validation Data
.02.00.00	Emission Test Results
.03.00.00	Maintenance Logs
.04.00.00	Engineering Reports
13.00.00.00	RESERVED
14.00.00.00	RESERVED
15.00.00.00	RESERVED

16.00.00.00	REQUEST FOR CERTIFICATE
.01.00.00	Statement of Compliance
.02.00.00	Emission Data Summary
.03.00.00	Certificate Information
.04.00.00	Production Engine Parameters
.01.00	Parts List
.02.00	Production Tolerances
.03.00	Quality Control Information

2.8 Standardized Engine Family Names

Applicants are strongly encouraged to use the standardized engine family naming system which is illustrated on Appendix pages 1-5.

2.9 Submitting the Application

Submission of the application is made after testing is completed and the application is in final form. One copy should be forwarded with a letter of transmittal to:

Director Certification Division
Office of Mobile Sources
U.S. Environmental Protection Agency
2565 Plymouth Road
Ann Arbor, Michigan 48105

A duplicate copy of the application should be forwarded to:

Director
Manufacturers Operations Division (EN-340)
U.S. Environmental Protection Agency
401 M. Street, S. W.
Washington, D. C. 20460

2.10 Revising the Application

After the application has been submitted, revisions may become necessary. The material which needs to be submitted depends upon whether or not a revision involves a product line change that may have an effect on emissions.

If a revision merely corrects an error or omission and does not involve a product line change which may have an affect on emissions, only a brief

description or explanation of the revision and the revised application pages are submitted.

If a revision involves a product line change which may have an affect on emissions, a Certificate Change Request must be submitted along with a description of the revision and the revised application pages.

Many applicants in the past have followed a practice of identifying successive running changes with a number which includes the family designation and model year of the vehicle being affected. (For example, the number of the first running change in the 1985 model year for the ABC family might be 85-ABC-01.) This practice has proved to be quite useful and is highly recommended.

Each page of the application should include a revision block which provides space for the date of issue as well as the effective date of each revision.

Revision No:

Revision Date:

Chapter 3

Preparing the Application

This chapter presents recommendations for preparing the sections of the application for certification in a manner that will ensure that the needs of EPA will be met. Careful adherence to these recommendations and the submission of all required data will greatly expedite the review process.

3.1 Communications (Section 01.00.00.00)

This section of the application should contain information concerning:

(a) Routine Communications

The names, addresses, and telephone numbers of all technical representatives who are authorized to communicate with EPA should be provided.

b) Receipt of Advisory Circulars and Other Technical Information

The name and address of the representative who is to receive the information should be provided. If the information is normally received through some organization (e.g., Motorcycle Industry Council, Inc.), the fact should be noted so that unnecessary duplicate distribution can be avoided. If the information is to be picked up by couriers rather than mailed, this fact should be noted.

(c) Receipt of Certificates of Conformity

The name and address of the representative who is to receive the certificate should be provided.

At the beginning of a new model year certification program EPA will assume that the Communications information provided in the applicant's previous model year application for certification is still applicable. To assure EPA's continued ability to communicate without inconvenience or delay, the applicant should keep EPA informed of any substantive change that may occur to the Communications information prior to the submission of the application for certification. If the applicant has not applied for certification, the communication information should be submitted as soon as possible, preferably well in advance of the submission of the application.

3.2 Statement of Business Confidentiality (Section 02.00.00.00)

Section 208(b) of the Clean Air Act requires (1) the Administrator to disclose to the public all non-trade secret information and keep trade secret information confidential and (2) the person who has submitted the information claimed to be confidential to make a satisfactory showing that the information in question would divulge trade secrets, if disclosed. If an applicant fails to make a claim the information in the application may be made available to the public without further notice to the applicant.

Confidentiality claims and substantiating information are to be included with the data for which confidential status is requested at the time of submission to EPA. For information for which confidential treatment is desired, the following questions need to be addressed:

1. Which information in the application for certification is considered to be entitled to confidential treatment until model introduction?

2. Which information in the application for certification is considered to be entitled to continuing confidential treatment after model introduction?

3. To what extent has the information been disclosed to others, and what precautions were taken with respect to these disclosures?

4. Is the information available to the public through legitimate means?

5. Can the information be derived from a detailed engineering inspection of the motor vehicle model in question or from information already public once the model is offered for public sale?

6. Would disclosure of the information be likely to result in substantial harm to the applicant's competitive position? If so, a detailed discussion regarding what the harmful effects would be, why the effects would be substantial, and the nature of the casual relationship between disclosure and the harmful effects must be presented.

Complete answers to these questions must be supplied for all information which is claimed to be confidential. The EPA General Counsel will make a final determination on the claim partly on the supporting data which are provided.

Information which is submitted in substantiation of a confidentiality claim may be claimed to be confidential in its own right. If the information pertains to the confidentiality claim, is not otherwise possessed by EPA, and is marked, when received by EPA, as "trade secret," "proprietary," or "company confidential," it will not be disclosed by EPA without the applicant's consent unless disclosure is ordered by a Federal

court. If no claim accompanies this substantiation information when it is received by EPA, it may be made available to the public without further notice to the applicant.

To facilitate reproduction for release purposes, trade secrets should not be included on the same page as information which is available for public release. Also pages containing trade secret information should be clearly identified as "TRADE SECRET," "PROPRIETARY," or "CONFIDENTIAL."

3.3 Reserved (Section 03.00.00.00)

3.4 Reserved (Section 04.00.00.00)

3.5 Reserved (Section 05.00.00.00)

3.6 Maintenance and Warranty (Section 06.00.00.00)

40 CFR 86.412-78 specifies that:

At the time of issuance, a copy of the vehicle owners manual and emission system warranty which will be provided to the ultimate purchaser is to be submitted to EPA.

In addition, the emission warranty which will be provided to the ultimate purchaser is to be provided to EPA.

3.7 Label Format (Section 07.00.00.00)

A copy of each label (either the actual label, a photograph, or a drawing) to be used to comply with 40 CFR 86.413-78 must be submitted. A photograph or a written description of the location of the label on the vehicle for each model certified must also be submitted.

3.8 General Technical Description (Section 08.00.00.00)

This section should be a reference book for Section 10.00.00.00. Whenever an explanation greater than a few words or a line is required in this section, a narrative explanation should be contained in Section 08.00.00.00. Similarly, whenever the configuration of a component needs to be shown, the drawing or schematic can be presented in Section 08.00.00.00.

Information, such as an emission control system feature (Sec. 10.06.02.00), which does not differ within or among engine families, will appropriately be listed in Section 08.04.00.00 and then referenced for each family to eliminate duplication.

3.9 Reserved (Section 09.00.00.00)

3.10 Engine Family Descriptions (Section 10.00.00.00)

The information submitted determines how the applicant's product line is subdivided into separate engine families.

When an application includes a number of engine families which share common characteristics, referencing should be used to avoid the submission of redundant information. The submission of much of this information may be eliminated by referencing a particular engine family. For example, if a manufacturer wishes to certify families A, B, and C, each of which differ by one or more parameters, the applicant can submit all the required information on engine family A and then submit a single page for engine families B and C with a statement stating that these families are identical to engine family A except for the listed differences.

This concept can be enlarged where certain sections of an engine family may be different but would benefit from the use of referencing. Discretion will have to be used, however, to ensure that this procedure is used in cases where there are few enough differences to make it an effective tool.

Section Number	Title
10.01.00.00	Common family parameters
.01.00	Block configuration
.01	Number of cylinders
10.01.01.02	Cylinder head configuration (specify OHV, OHV/OHC, etc.) (Four Stroke only)
.03	Type of cooling (air, water)
.04	Cylinder arrangement (Inline, 90 Vee, etc.)
.02.00	Combustion cycle (four-stroke cycle, two-stroke cycle, etc.)
.03.00	Method of aspiration (natural, supercharged, etc.)
.02.00.00	Individual engine parameters (physical)
.01.00	Displacement (cc)
.02.00	Bore and stroke (mm)
.03.00	Advertised or rated kw @ RPMl
.04.00	Advertised or rated torque @ RPM
.03.00.00	Individual engine parameters (Fuel system)
.01.00	Carburetor

.01	Number of Carburetors
.02	Number of venturis per carburetor
.03	Calibration and range of adjustment
.04	Description
.02.00	Fuel Injection
.01	Basic Type (e.g., mechanical, electronic, timed, continuous)
.02	Point of injection (e.g., manifold, throttle body)
.03	Calibration and range of adjustment
.04	Description
.04.00.00	Individual engine parameters (Ignition system)
.01.00	Basic ignition timing and range of adjustment
.02.00	Advance or retard calibration
.03.00	Description
.05.00.00	Individual engine parameters (Supercharger or turbocharger)
.01.00	Type (centrifugal, roots, etc.)
.02.00	Calibration (if applicable)
.06.00.00	Individual engine parameters (emission control system)

. Indicate whether net or gross, and specify method of measurement, e.g., 25 kw @ 7,000 RPM, SAE net.

10.06.01.00	Crankcase emission control system? (yes or no)
.01	Calibration
.02	Description
.02.00	Exhaust emission control system
.01	List all emission control system on engine
.02	Description of each emission control system
.03	Calibration of each emission control system
.03.00	Auxiliary emission control device (AECD)
.01	List all AECD used on engine

.02	Describes in detail each AECD
.03	Calibration of each AECD
.04.00	Evaporative emission control system used? (yes or no)
.05.00	Emission control related warning device description
.07.00.00	Individual Vehicle Parameters
.01.00	Transmission
.01	Type (e.g., manual, automatic semi-automatic)
.02	Gear ratios
.03	Overall drive ratios (expressed in N/V)
.02.00	Vehicle mass or vehicle mass range
.03.00	Optional equipment

3.11 Reserved (Section 11.00.00.00)

3.12 Test Vehicle Information (Section 12.00.00.00)

The test vehicle information section should be submitted in a separate looseleaf binder. Divider pages should be used to separate the test vehicles. This test vehicle information will remain in EPA files so that applicants may reference this information across model years when carryover of test vehicle is desired. Applicants may add test vehicles to this section at anytime during the certification model year or during any later certification model year.

3.12.1 Zero-Kilometer Validation Data

Before service accumulation on a test vehicle is initiated, the suitability of the vehicle for certification usage must be determined and documented. The required documentation involves information shown on page 6 of the Appendix and all emission-related components, such as carburetor, spark advance, air injection, and auxiliary emission control device flow curves or the results of other types of performance checks.

3.12.2 Emission Test Results

These data are obtained from each emission test that are performed on a certification vehicle and must be recorded. The results can be reported on forms similar to the one shown on page 7 in the Appendix.

3.12.3 Maintenance Information

All maintenance, scheduled and unscheduled, performed on a certification vehicle must be recorded. A form similar to that shown on page 8 in the Appendix can be used to report the maintenance.

3.12.4 Engineering Reports

When unscheduled maintenance is performed on a certification engine an engineering report must be submitted. [Ref: 40 CFR 86.431-78(c)]

3.13 Reserved (Section 13.00.00.00)

3.14 Reserved (Section 14.00.00.00)

3.15 Reserved (Section 15.00.00.00)

3.16 Request for Certificate (Section 16.00.00.00)

Statements of compliance with 40 CFR 86.408-78(a)(1) and (2) (ref. Advisory Circular No. 76), and 40 CFR 86.437-78(a)(1) and (2) must be provided.

3.16.1 Certification Information

The information which is included on pages 9 and 10 of the Appendix must be submitted. The exact format which is used on page 10 must be used to facilitate the inclusion of the information into the EPA computer data base.

3.16.2 Certificate Information

The following information concerning the certificates of conformity needs to be provided:

a. The person to whom the certificates should be mailed.

b. The exact engine family designation to appear on the certificate.

3.16.3 Production Part Numbers

A list of production part numbers needs to be included. A sample form for the presentation of part numbers is shown on page 14 in the Appendix.

3.16.4 Production Vehicle Parameters

Production calibration data (showing tolerance limits) need to be included for each calibration of carburetor (or fuel injection systems), distributor, automatic choke, AECD, EGR, turbocharger etc., which is available within the product line. Each set of data and calibration should be identified by:

a. Engine family
b. Engine displacement
c. Engine code
d. Fuel system

Each calibration and set of production tolerance limits shall also indicate (1) any differences from tolerance limits previously included in the application and (2) any special points at which all production pieces are checked and/or adjusted. For example, all carburetors are flow checked and air/fuel ratio adjusted at 2 and 6 pounds per minute air flow and checked at 4 and 30 pounds per minute air flow. Applicants should also indicate the percentage of production pieces checked and/or adjusted.

Describe sampling technique, i.e., how "production" tolerances are determined and how tolerance bands are used. For example, a 100 percent check, with rejection of all pieces outside of bands, a 2 percent audit of production, or a batch sampling technique.

For any production curve or calibration referenced in this section that is identical in all respects to an engineering curve or calibration previously included in this application, reference to the curve number and latest revision date in this section can be made in lieu of resubmitting the curve or calibration.

Alternatively, the applicant may provide an unqualified statement such as the following, defining the tolerances expected to apply to production vehicles:

> This application for certification identifies and describes those vehicles to be covered by the certificate(s) of conformity issued by EPA, and this application for certification covers only those new motor vehicles to be produced by (company name)

which conform, in all material respects, to the design specifications (including tolerances) which are contained herein.

APPENDIX

Table of Contents

EPA STANDARDIZED ENGINE FAMILY CODES FOR MOTORCYCLES

BACKGROUND

EPA-OMS has proposed to the manufacturers of LDV's that they adopt a standard format for their engine families. The main impetus behind the standard format is to reduce the number of transcription errors that occur when the engine families are entered into the data base. The standard format is designed to avoid the use of letters that are confused with numbers and it has a check-digit to further assure accurate data entry. For those who are unfamiliar With a check-digit there is a discussion at the end of this report. The proposed ef codes also have fixed length and contain the same general information.

Motorcycle certification could benefit from this type of standard of code: therefore, the format has been revised to be suitable for these types of vehicles.

PROPOSED FORMAT FOR STANDARDIZED ef CODE

The proposed ef code for motorcycles is formatted as follows:

first character	Model year (see Table l)
characters 2 and 3	Letter code describing manufacturer (see Table 2)
characters 4, 5, 6, and 7	Displacement in cc's
character 8	Number of strokes (2 or 4, 1 for rotary)

character 9	Number of carburetors
character 10	Letter code to make first 10 digits unique (any letter except for I, O, Q, S, U and V)
character 11	Check sum digit

Example -A 1980 Suzuki GS1000E would be designated as:

ASK099744A7

A = MY 1980
SK = Suzuki
0997 = 997 cc's

4 = 4 stroke

4 = 4 carburetors

A = uniqueness digit

7 = CSD (Method of determining CSD is shown below)

Check-sum Digit (CSD)

A check-sum digit is used in codes as a means of checking that the characters entered are correct. For example, in university courses, the registration code for Math 321 Section 4 might be 456-321-4-5 (456 = Math). The 5 is tacked on the end 90 that the sum of all the digits is evenly divisible by some arbitrary number, in this case 10 (i.e., 4 + 5 + 6 + 3 + 2 + 1 + 4 + 5 = 30, which is divisible by 10). Thus a transcription error such as 466-321-4-5 would be flagged by a computer program. If the codes are alpha-numeric, then a computer program will also have to convert the alphabetical characters to numerical values.

Error checking with a CSD can be made more effective if different weights are applied to the characters. For example, character 1 might be multiplied by 9, character 2 by 8, and so forth. the CSD would be determined by adding the products and then dividing by some arbirtary number. This method would help catch transposition errors that would not be detected by the straight sum method. In the example shown, if the number were entered as 456-312 4 5 (the 1 and 2 being switched), and the digits were added separately, the computer would accept it since the sum is still equal to 30. However, if the characters were weighted, the sums would be different if two characters were switched.

Method of Determining CSD

Step 1. Assign to each number in the ef code its actual mathematical value and assign to each letter the value specified below:

A = 1	J = 1	T = 3
B = 2	K = 2	U = 4
C = 3	L = 3	V = 5
D = 4	M = 4	W = 6
E = 5	N = 5	X = 7
F = 6	P = 7	Y = 8
G = 7	R = 9	Z = 9
H = 8	S = 2	decimal pt = 1

Step 2. Multiply the assigned value for each character is the ef code by the weight factor specified for it below:

	Weight Factor
1st	10
2nd	9
3rd	8
4th	7
5th	6
6th	5
7th	4
8th	3
9th	2
10th	

Step 3. Add the resulting products and divide the total by 11. The remainder is the CSD. If the remainder is 10, the CSD is X.

Example 1: Determine the CSD for the Suzuki example ASK099744A.

	A	S	K	O	9	9	7	4	4	A
Assigned Value	1	2	2	0	9	9	7	4	4	1
Weighted Value	10	9	8	7	6	5	4	3	2	1
Products	10	18	16	0	54	45	28	12	8	1

Sum of Produsts = 192

Divide by 11 = 17 + 5/11

CSD = 5

Therefore, ef code is ASK099744A5.

TABLE 1. PROPOSED SUBCODES FOR MODEL YEAR

Year	Code
1980	A
1981	B
1982	C
1983	D
1984	E
1985	F
1986	G
1987	H
1988	J
1989	K
1990	L
1991	M
1992	N
1993	P
1984	R
1995	S
1996	T
1997	V
1998	W
1999	X
2000	Y
2001	1
2002	2
2003	3
2004	4
2005	5
2006	6
2007	7
2008	8
2009	9
2010	A
2011	B
2012	C

TABLE 2. PROPOSED SUBCODES MANUFACTURER OF MOTORCYCLES

Code	Manufacturer
AJ	American Jawa
BY	Badsey Bullet
BJ	Bajaj
BM	BMW
CG	Cagiua
DU	Ducati
HD	Harley-Davidson
HN	Honda
KA	Kawasaki
LM	Lambretta
MG	Moto Guzzi
ML	Moto Laverda
MM	Moto Morini
MC	OMC Lincoln
VP	Piaggio (Vespa)
RE	Reliant
SC	Scooters India
SR	Sidecar Imports
SK	Suzuki
FT	Triking
TR	Triumph Inc.
TH	Trihawk
YA	Yamaha
YT	Yen Tyan

VEHICLE DATA SHEET

Manufacturer

1. Vehicle Specifications:

Engine Family Vehicle Serial No.
Vehicle I.D. No. (if used) Model
Displacement Class
Engine Code and Serial No. Displacement (cc)
No. Rotors/Cylinders Compression Ratio
Advertised HP Bore cm Stroke cc

Transmission Drive Ratio N/V
Tire Size Curb Mass Kgm
Curburetor Make No. of Venturis Curve No.
Choke Setting Distriburtor Make Curve No.
Exhaust Emission Control System**
AECD's and Calibration Values

2. Engine Tuneup Specifications (include all label specifications and procedures, indicated Specified/Actual)

Basic Ignition Timing / Degrees TDC at / RPM
Setting Procedure
Idle Speed / RPM in / Dwell / Idle CO
Setting Procedure
Spark Plug Type Spark Plug Gap (mm)

3. Test Conditions:

Dynamometer Inertia Actual Road Load Power _ NT at KPH
Tank Fuel Volume (litres) Shift Procedure
Starting Procedure***
Fuel Type

*If applicable.
**Indicate catalyst code if applicable.
***As outlined in the vehicle owner's manual.

EPA I.D. NO.

VEHICLE LOG SHEET*

Vehicle No. (if used)

Engine Family Displacement cc Model

Vehicle Serial No.

Transmission Engine Code Exhaust Emission Control System**

Engine Displacement Class Crankcase Control System

Test Date	Odom No.	System Kilometre	Event Kilometres***	Actual Idle Seed	Ambient Temp. (C)	Emission Results-gm/Km HC	CO	CO2	MPG	Description

*Indicate all emission measurements performed on a vehicle, including EPA tests. Also indicate whether tests are before or after tune-up, scheduled maintenance, unscheduled maintenance, giving brief description of maintenance and additional information requested by EPA (engineering reprt, data, etc.). Include partial, void, and other tests.

**Indicate catalyst code, if applicable.

***Specify correction, i.e., System Kilometres CFx=Odom. Kilometres + IC where

CF = Correction and IC = initial correction.

EPA I.D. NO.

MAINTENANCE LOG SHEET*

Vehicle No. (if used)

Engine Family Displacement cc Model

Vehicle Serial No.

Transmission Engine Code Exhaust Emission Control System**

Engine Displacement Class Crankcase Control System

Date	Odomoter Kilometres	System Kilometres	Maintenance and Authority***	Report No.

*Give a complete detailed description of all maintenance performed. Specify the EPA representative who gave prior approval (and date) or state the reason why the prior approval was not required (regulations, etc.).

**Indicate catalyst code, if applicable.

***All sp ecifications checked should be reported, e.g., ??? before and after reset, ignition timing. ??? D. numbers should be retained for replaced components.

Exhaust Emission Deterioration Factor Data1

Engine Family Exhaust Emission Control System

Vehicle No. _ EPA I.D. No.

Emission Values2

Actual System Kilometers	Test Number	HC	CO

Interpolated Values:

HC = . CO =

HC = _ . CO =_ _

Deterioration Factors:

Engine-System HC Factor =
Engine-System CO Factor = = = . = =

1. Submit a separate sheet for each family-control system combination. List only the data used to calculate the deterioration factors. If more than one vehicle is used to calculate the deterioration factors for a single engine-system combination, submit an additional sheet for each vehicle, deleting the "Interpolated Values," and "Deterioration Factors" information from the additional sheets.

2. In accordance with 40 CFR 86.544-78.

MOTORCYCLE CERTIFICATION INFORMATION SHEET

FAMILY INFORMATION

CORPORATE NAME (MFR): . . . . ./
EPA STANDARDIZED ENGINE FAMILY NAME:(3) . . . . . / MFR FAMILY NAME /
MODEL YEAR: . . . . . ./
NUMBER OF CYLINDER: . . . . . ./
METHOD OF ASPIRATION:(T,N)(1) ./
FUEL SYSTEM: (CB, FI)(1). . . ./
NO. OF CARBS (IF APPLIC): . . ./
NO. OF CYCLES: (e.g., 4, 2). ./
FAMILY SALES: . . . . . ./
FAMILY MODELS:(2). . . . . .[

-

FAMILY DISPLACEMENTS:(2)[
]

TEST MOTORCYCLE INFORMATION

MODEL . . . . . /
DISPLACEMENT (cc) . . . . / / / / / / / / / / /

EMISS CNTRL SYS(1) . . . .
ENGINE CODE . . . . . /
TRANS TYPE (e.g., M4, A3) /
N/V . . . . . / / / / / -/ -
INERTIA WT CLASS (kg) . . / / / / / _/ _/ _
VEHICLE ID NO . . . . . /

OFFICIAL TEST RESULTS: (Exhaust Emissions)
TEST NUMBER:. . . . / /
HC (gm/km) . . . . /
CO (gm/km) . . . . / / / / / -/ -/ -/
CO2 (gm/km) . . . . / _/ _/ / J / -/ -/ -/ J

DETERIORATION FACTORS: (Exhaust Emissions)
HC DF . . . . . /
CO DF . . . . . / / =/ / / / -/ -

CERTIFICATION LEVELS: (Exhaust Emissions)
HC (gm/km). . . . . /
CO (gm/km). . . . . / _/ _

COMMENTS:

(1) Codes: Method of Aspiration: Fuel System: Emission Control System:

N -Natural	CB -Carburetor	AS -Air Suction
T -Turbocharged	FI -Fuel Injection	EM -Engine Modific.
		AIR -Air Injection
		CAT -Catalyst

(2)Separate each model or displacement with a semicolon (;)
(3)Both EPA standardized engine family name and MFR engine family name must be filled out wh
MFR does not use EPA standardized engine family name in application.

	Engine Code	Engine Code	Engine Code
Fuel pump part number			
Carburetor assembly part number			
Fuel injection control unit part number			
Supercharger or Turbocharger:			
Assembly			
Turbine			
Compressor housing			
Wastegate valve			
Spark plug identification number			
Alternate spark plugs			
Distributor (spark advancer and contract breaker) assembly part number			
Crankcase emission control system component part number			
Auxiliary emission control devices - identification (color, production code, number, etc.) of calibrated components			
Air injection system:			
Air pump part number			
Diverter value part number			
Check relief valve part number			
Exhaust gas recirculation system			
EGR valve			
Amplifier			
Modulator			
Delay valve			
Catalyst assembly part number			
Other major exhaust emission control system--part number(s) of calibrated component(s)			
Emission control related warning system--part number(s) of calibrated components(s)			

Note: In each case, both the manufacturer's part number and any vendor's part number should be included and identified.